# CIVIL QUALITY CONSULTANTS & ENGINEERS

(Buildings Geo-Tech & Highway Materials Testing Laboratory)
An ISO 9001: 2015 Certified Company
NABL Accredited As Per ISO/IEC : 17025:2005 Laboratory

JAS-ANZ
ISO 9001:2000 CERTIFIED


Job No.: CQCE/BBMP/MY/W.No.12/2019-20 Date 23.11.2019

## FIELD DENSITY TEST BY SAND REPLACEMENT METHOD

### (IS : 2720 - Part 28)

**Client** : **Executive Engineer,** Dasarahalli Zone, BBMP, Bangalore.

**Agency** : **Sri. M. Yogesh (M/s Professional global infrastructure privited limited)**, Bangalore.

**Name of work** : Restoration of road cut portion done by BWSSB in Chikkasandra Village Government school surrounding area in ward no.12, Shettyhalli sub Division. PKG-02 , BBMP, Bangalore.

**Date of Testing** : 22.11.2019 to 23.11.2019

**Material Source** : Wet Mix Macadam

| | |
|---|---|
| Max.Dry Density g/cc | 2.26 |
| Optium Moisture Content (%) | 7.25 |
| Bulk Density of Sand g/cc(ys) | 1.35 g/cc |
| Wt. of Sand in Cone gms | 338 grams |

| DETERMINATION OF WET DENSITY | |
|---|---|
| Test Holes No's | 1 |
| Offset from centre of alignment & chainage | Chikkasandra Village |
| Wt of the Moist soil from excavated hole = W | 1987 |
| Wt.of Cylinder+Sand before pouring (gm) (w1) | 6800 |
| Wt.of Sand in the cone (gm) (w2) | 338 |
| Wt.of the Cylinder and sandfilling the excavated hole (w4) | 5322 |
| Wt of the sand in the excavated hole wb=w1-w4-w2 | 1140 |
| Volume of Sand in Hole = (v=wb/Ys)=$cm^3$ | 844.44 |
| Insitu Bulk density Wet excavated soil Y=w/v | 2.35 |
| Moisture Content (%) | 5.20 |
| **DETERMINATION OF DRY DENSITY** | |
| Field dry Density (g/cc) | 2.24 |
| Field compaction achieved (%) | 98.97 |
| Required Compaction (%) | 98 |

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory


Office & Laboratory : # 133, Bhuvaneshwarinagar, Dodda Basti Main Road, Bangalore - 560 056.
e-mail:civilqualityconsultants@gmail.com Ph: 080-23240644 / Mob: 8553518550


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Job No.: CQCE/BBMP/MY/W.No.12/2019-20 Date: 09.12.2019

## TEST REPORT

| | | |
|---|---|---|
| **Client** | : | **Executive Engineer,** Dasarahalli Zone, BBMP, Bangalore. |
| **Agency** | : | **Sri. M. Yogesh (M/s Professional global infrastructure privited limited),** Bangalore. |
| **Name of the work** | : | Restoration of road cut portion done by BWSSB in Chikkasandra Village Government school surrounding area in ward no.12, Shettyhalli sub Division. PKG-02 , BBMP, Bangalore. |
| **Source of location** | : | Hot mix Plant, Bangalore. |
| **Date of testing** | : | 09.12.2019 |

The results of the tests conducted on the bitumen sample using for Open Graded Premix surface

| Sl. No | Description | Test Result | Requirement as per IS:73:2013 |
|---|---|---|---|
| 1 | Penetration at 25 $^0$C, 1/10 mm | 86 | 80 to 100 |
| 2 | Softening point, $^0$C | 52 | Min. 45 |
| 3 | Ductility at 27$^0$C, cm | 100 > | Min. 50 |
| 4 | Flash Point, $^0$C | 302 | Min. 220 |

**Note:**

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⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.
⇒ Any Query regarding the report must be reported within 30days from the date of testing.

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Job No.: CQCE/BBMP/MY/W.No.12/2019-20 Date: 09.12.2019

## Aggregate Impact Value

IS: 2386 Part IV

| | |
|---|---|
| **Client** | **Executive Engineer,** Dasarahalli Zone, BBMP, Bangalore. |
| **Agency** | **Sri. M. Yogesh (M/s Professional global infrastructure privited limited),** |
| **Name of the Work** | Restoration of road cut portion done by BWSSB in Chikkasandra Village Government school surrounding area in ward no.12, Shettyhalli sub Division. PKG-02 , BBMP, Bangalore. |
| **Source / Location** | Hot Mix Plant, Bangalore |
| **Type of Mix** | Open Graded Premix surface |
| **Date of Testing** | 09.12.2019 |

| Sl No. | Details | Trial No. | | Average |
|---|---|---|---|---|
| | | 1 | 2 | |
| 1 | Total weight of aggregate sample filling the cylindrical measure = $W_1$ g | 378 | 379 | |
| 2 | Weight of agregate passing 2.36 mm sieve after the test = $W_2$ g | 86 | 88 | |
| 3 | Weight of aggregate retained 2.36 mm sieve after the test = $W_3$ g | 292 | 291 | |
| 4 | Aggregate Impact value = percent fines<br>100* ($W_2/W_1$) percent | 22.75 | 23.22 | **22.99** |

Comments:

→ Maximum allowable Aggregate Impact value for OGPS is 30%

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Job No: CQCE/BBMP/MY/W.No.12/2019-20 10.12.2019

## BITUMEN CONTENT AND GRADATION DETERMINATION OF OPEN GRADED PREMIX SURFACE
## AASHTO T 164 & AASHTO T 30

| | |
|---|---|
| CLIENT | **Executive Engineer,** Dasarahalli Zone, BBMP, Bangalore. |
| AGENCY | **Sri. M. Yogesh (M/s Professional global infrastructure privited** |
| NAME OF THE WORK | Restoration of road cut portion done by BWSSB in Chikkasandra Village Government school surrounding area in ward no.12, Shettyhalli sub Division. PKG-02 , BBMP, Bangalore. |
| SAMPLE I/D | Sample Supplied by Agency |
| DATE OF TESTING | 10.12.2019 |

**BITUMEN CONTENT DETERMINATION**

| Description | Sample 1 | Sample 2 |
|---|---|---|
| 1. Weight of Mixture before Test, g | 500 | 500 |
| 2. Weight of Mixture after Test, g | 474 | 474.5 |
| 3. Weight of Asphalt and Mineral matter Extracted, g | 26 | 25.5 |
| 4. Weight of Mineral Matter, g. | - | - |
| 5. Weight of Ash, g | - | - |
| 6. Weight of Bitumen Extracted, g. (corrected) | 26 | 25.5 |
| 7. Bitumen content in % | 5.20 | 5.10 |
| 8. Average | 5.15 | |

**GRADATION AFTER EXTRACTION**

**TABLE - 1**

| Sieve size in mm | Percent Passing, % | | Specified Limits as per MORTH specification |
|---|---|---|---|
| | Sample 1 | Sample 2 | |
| 13.2 | 100.00 | 100.00 | 100 |
| 11.2 | 96.2 | 95.4 | 88-100 |
| 5.6 | 46.2 | 45.1 | 31-52 |
| 2.8 | 11.9 | 12.7 | 5.-25 |
| 0.09 | 3.5 | 2.9 | 0-5 |

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Job No: CQCE/BBMP/MY/W.No.12/2019-20 10.12.2019

## BITUMEN CONTENT AND GRADATION DETERMINATION OF OPEN GRADED PREMIX SURFACE
## AASHTO T 164 & AASHTO T 30

| | |
|---|---|
| CLIENT | **Executive Engineer,** Dasarahalli Zone, BBMP, Bangalore. |
| AGENCY | **Sri. M. Yogesh (M/s Professional global infrastructure privited limited),** Bangalore. |
| NAME OF THE WORK | Restoration of road cut portion done by BWSSB in Chikkasandra Village Government school surrounding area in ward no.12, Shettyhalli sub Division. PKG-02 , BBMP, Bangalore. |
| SAMPLE I/D | Sample Supplied by Agency |
| DATE OF TESTING | 10.12.2019 |

### BITUMEN CONTENT DETERMINATION

| Description | Sample 1 | Sample 2 |
|---|---|---|
| 1. Weight of Mixture before Test, g | 500 | 500 |
| 2. Weight of Mixture after Test, g | 473.5 | 474.5 |
| 3. Weight of Asphalt and Mineral matter Extracted, g | 26.5 | 25.5 |
| 4. Weight of Mineral Matter, g. | - | - |
| 5. Weight of Ash, g | - | - |
| 6. Weight of Bitumen Extracted, g. (corrected) | 26.5 | 25.5 |
| 7. Bitumen content in % | 5.30 | 5.10 |
| 8. Average | 5.20 | |

### GRADATION AFTER EXTRACTION

TABLE - 1

| Sieve size in mm | Percent Passing, % | | Specified Limits as per MORTH specification |
|---|---|---|---|
| | Sample 1 | Sample 2 | |
| 13.2 | 100.00 | 100.00 | 100 |
| 11.2 | 91.8 | 82.4 | 88-100 |
| 5.6 | 41.9 | 42.8 | 31-52 |
| 2.8 | 13.9 | 14.3 | 5.-25 |
| 0.09 | 2.9 | 3.1 | 0-5 |

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Job No.: CQCE/BBMP/MY/W.No.12/2019-20 Date: 23.12.2019

## TEST REPORT

| | | |
|---|---|---|
| **Client** | : | **Executive Engineer,** Dasarahalli Zone, BBMP, Bangalore. |
| **Agency** | : | **Sri. M. Yogesh (M/s Professional global infrastructure privited limited),** Bangalore. |
| **Name of the work** | : | Restoration of road cut portion done by BWSSB in Chikkasandra Village Government school surrounding area in ward no.12, Shettyhalli sub Division. PKG-02 , BBMP, Bangalore. |
| **Source of location** | : | Hot mix Plant, Bangalore |
| **Date of testing** | : | 23.12.2019 |

The results of the tests conducted on the bitumen sample using for Semi Dense Bituminous Concrete

| Sl. No | Description | Test Result | Requirement as per IS:73:2013 |
|---|---|---|---|
| 1 | Penetration at 25 $^0$C, 1/10 mm | 88 | 80 to 100 |
| 2 | Softening point, $^0$C | 48 | Min. 45 |
| 3 | Ductility at 27$^0$C, cm | 100 > | Min. 50 |
| 4 | Flash Point, $^0$C | 298 | Min. 220 |

**Note:**

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For CIVIL QUALITY CONSULTANTS & ENGINEERS

Harsha
Authorised Signatory


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